



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/721,106

11/26/2003

Gabin Vic

06028.0033-00

6199

22852

7590

08/10/2009

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER  
LLP

901 NEW YORK AVENUE, NW  
WASHINGTON, DC 20001-4413

EXAMINER

VENKAT, JYOTHSNA A

ART UNIT

PAPER NUMBER

1619

MAIL DATE

DELIVERY MODE

08/10/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Art Unit: 1619

## **DETAILED ACTION**

### **Status of claims**

Claims 4, 6-7, 13, 15-21, 24-29, 31 and 33-34 are withdrawn from consideration as being drawn to non-elected species (election without traverse dated 3/5/08). Claims 1 -3, 5, 8-12, 14, 22-23, 30 , 32 and 35 are currently examined in the application.

### ***Claim Rejections - 35 USC § 103***

Claims 1 -3, 5, 8-12, 14, 22-23, 30 , 32 and 35 are rejected under 35 U.S.C. 103(a) as being obvious over U. S. Patent 6,361,767 ('767).

Patent '767 teaches hair treatment method involving fixing active compounds to reactive sites. See the abstract. Patent at col.1, ll 20-55 teaches :

Art Unit: 1619

However, since such active principles are not irreversibly fixed but are only fixed by adsorption, they are gradually eliminated by desorption during successive washes using shampoo.

To improve the persistence, studies have primarily been based on treatments which tend to cause a large proportion of the active principles to penetrate into the fibres, either by selecting such active principles which have a particular affinity for the fibres, or by modifying the fibres to increase their porosity and encourage penetration.

Thus coloration of hair keratin fibres is known to be improved by carrying out coloration simultaneously with permanent-waving. Reduction of the disulphide bonds of the keratin at depth permits the colorant to penetrate deeper and thus produces a certain durability of coloration.

This type of treatment, however, is not without serious disadvantages as it causes substantial degradation not only of the surface condition of the keratinous fibres, but also of their intrinsic mechanical properties.

As a result of a great deal of research in this field with a regard to remedying the disadvantages encountered until now, it has surprisingly and unexpectedly been shown that excellent results could be obtained when fixing active compounds to keratinous hair fibres without them suffering detrimental degradation. This has been achieved by limiting reactive site formation to only the surface of the keratinous hair fibres using a reducing agent employed under conditions and in proportions such that reactive sites are only generated at the periphery of the surface of the keratinous fibres.

It has actually been shown that the creation of reactive sites only on the surface is sufficient, and that they are remarkably reactive, to result in good fixing of a variety of active compounds by means of covalent bonds, without the original mechanical properties of the hair being substantially modified.

Patent at col.2, ll 1-8 teaches:

Art Unit: 1619

In accordance with the invention, the treatment method can be carried out either in two separate steps, namely reducing the disulphide bonds of the keratin in a first step, and fixing the active compound by covalent bonds in a second step, or in a single step consisting in simultaneously reducing the disulphide bonds of the keratin and fixing the active compound.

This patent teaches the treatment method in two steps.

Patent at col.7, ll 10-20 teaches :

Clearly, these different parameters concerning the concentration, pH, temperature and contact time are inter-dependent and clearly, due consideration in this respect should be given. - Thus, for example, an increase in the concentration or a rise in temperature will result in a substantial reduction in the contact time. 10 15

When the treatment method of the invention is carried out in two steps, after reducing the disulphide bonds of the keratin in the keratinous fibres, they can be rinsed with water before fixing the active compound.

Patent at col.7, ll 27-30 teaches :

When the active compounds which are to be fixed do not possess such functions, these are then first introduced into the active compound using known methods. The term "reactive function" means a known reactive group which permits the formation of a covalent bond (by reaction with nucleophilic functions, in this instance sulphydryl functions —SH) and which thus comprise one or more nucleofuge(s) X or one or more activated carbon(s) or bond(s). The following groups are the usual nucleofuges:

Patent at col.7, ll 40-45 describes polyalkyleneimines as a nucleofuge and this is the same elected species claimed in the instant application. Patent at col.8, ll 50-59 describes claimed dye derivatives. Patent under example 1 and example 8 teaches fixing colorant on locks of hair and at

Art Unit: 1619

col.11 under method 8 teaches reducing hair locks with polyethyleneimine and at col.12, ll 27-40 discloses colorant graft step using dye derivatives and using polyethyleneimine .

Accordingly it would be obvious to one of ordinary skill in the art at the time the invention was made to treat the hair using polyethyleneimine and dye derivatives taught by patent '767 with the reasonable expectation of success that good fixing of dyes by chemical bond takes place on the keratin substrate and the keratin fibers not suffering detrimental degradation. This is prima facie case of obviousness.

### ***Response to Arguments***

Applicant's arguments filed 7/15/09 have been fully considered but they are not persuasive.

Applicants' argue :

*"As Applicants have previously stated, the '767 patent describes a method for treating hair keratin fibers by reducing the sulphur bonds to generate reactive sites, whereas the present claims recite "non-reducing activation." See Amendment and Reply to Office Action dated December 10, 2008. The Office's statement that the "same polymer (polyethyleneimine of example 8)" of the pending claims is present in the '767 patent is false. The '767 patent example 8 discloses "a branched polyethyleneimine polymer "carrying thiol functions" '767 col. 11, lines 45-46 (emphasis added). The presence of the thiol functions on the polyethyleneimine is further underscored by the thiol concentration*

Art Unit: 1619

*disclosed "(thiol titre: 1220 meq/l)" in the '767 patent. Id. at line 47. The thiol functions of the '767 patent allow the compound to reduce the disulphide bonds on the keratin fibers. See id. at lines 44-46 and 66-67 ("After this reduction step ... ") Any skilled artisan knows that thiol functions are reducing agents. Thus, the '767 polymers are not the "same polymer," as in the present claims; the difference being the '767 polymers are reducing agents and, in contrast, the polymers of the present application do not carry any thiol functions because the compound activates the hair without reducing the disulphide bonds of the hair. They do not and cannot teach or suggest non-reducing activation".*

In response to the above argument, patent at col.2, ll 35-68 and col.3, ll 1-25 describes the reducing agents. Examples 1-7 uses "reducing agent" and **example 8 does not use any reducing agent ( emphasis added).**

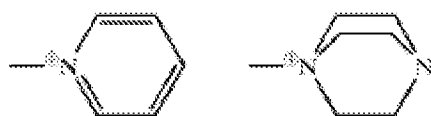
Patent '767 at col.7, ll 20-25 teaches :

Art Unit: 1619

The active compounds which can be covalently fixed on the nucleophilic functions generated can be of a highly varied nature and their choice depends on the desired properties. These active compounds can be used as they are if they possess functions which are capable of forming covalent bonds with the nucleophilic functions of the keratinous hair fibres.

When the active compounds which are to be fixed do not possess such functions, these are then first introduced into the active compound using known methods. The term "reactive function" means a known reactive group which permits the formation of a covalent bond (by reaction with nucleophilic functions, in this instance sulphydryl functions  $\text{---SH}$ ) and which thus comprise one or more nucleofuge(s) X or one or more activated carbon(s) or bond(s). The following groups are the usual nucleofuges:

Cl, Br, F,  $\text{---OSO}_2\text{M}$ ,  $\text{---OSO}_2$  alkyl,  $\text{---OSO}_2$  aryl,  $\text{---OSO}_2\text{N(alkyl)}_2$ ,  $\text{---OR}_1$ ,  $\text{SR}_2$ ,  $\text{---SOR}_2$ ,  $\text{---SO}_2\text{R}_2$ ,  $\text{---S}^+\text{R}_2\text{R}_3$ ,  $\text{---SCN}$ ,  $\text{---SCOOR}_2$ ,  $\text{---NR}_2\text{R}_3$ ,  $\text{N}^+\text{R}_2\text{R}_3\text{R}_4$ ,



where M represents a hydrogen atom, an alkali or an alkaline-earth metal or an ammonium residue;

$\text{R}_1$  represents a hydrogen atom, a  $\text{C}_1\text{---C}_4$  alkyl radical, a substituted or unsubstituted phenyl radical, the radical  $\text{PO}_3\text{H}_2$  and its salts, or the acetyl radical;

$\text{R}_2$ ,  $\text{R}_3$  and  $\text{R}_4$ , which may be identical or different, represent a hydrogen atom, a  $\text{C}_1\text{---C}_4$  alkyl radical or a substituted or unsubstituted phenyl radical.

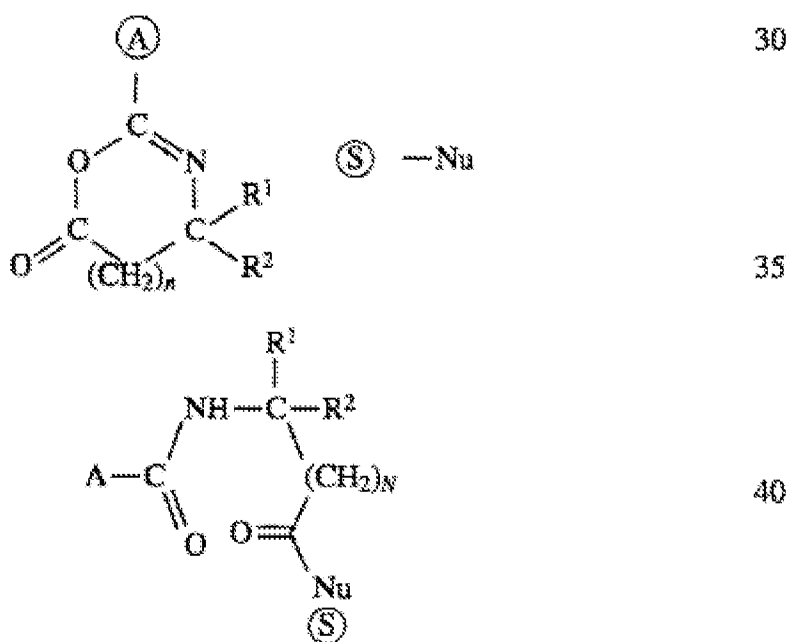
Among the most well known reactive groups, the following can be cited:

Applicants' attention is drawn to patent 5,523, 080 ('080) cited on PTO-1449. Patent '080 at col. 5, ll 20-48 teaches equation wherein the cosmetic active compound attaches to the substrate. See below.

Art Unit: 1619

When the azlactone functionalised cosmetic agent is applied to the preferred substrates in accordance with the invention, namely a substrate which comprises at its surface at least one nucleophilic group such as amine, hydroxyl or thiol, the azlactone group reacts with the nucleophile, resulting in a ring-opening reaction represented by the following equation:

Equation 1



wherein A represents the cosmetic active moiety bonded to the azlactone group, S represents the substrate material and Nu represents a nucleophilic group at the substrate surface.

Patent '767 under example 8 teaches method which has polyethyleneimine, and gamma thio butyrolactone. In the above equation A is the polyethyleneimine, which is attached to gamma thio butyrolactone and S is substrate, which is hair and Nu is the functional groups present on keratin present on hair and this can be amino acid glycine or alanine or sulfur containing amino acid cysteine. Alanine and glycine have the functional group NH and cysteine



Art Unit: 1619

has the functional group SH. The above equation corresponds to " producing activated of hair by non-reducing activation of hair".

Therefore method 8 under ll 44-46 teaches this polymer polyethyleneimine having thiol functions and this method does not use any reducing agents described in patent and therefore this method teaches activated hair by "non-reducing activation of hair " claimed in the instant application. **Even though patent uses the word " reducing" the method of example 8 does not use the conventional reducing agents described in the patent.** Example 1 of patent is drawn to fixing colorant on hair and therefore method 8 ( step a of claim 1) and the description at col.12 ll 32-38 ( step b of claim) teaches one of ordinary skill in the art would to use the same polyethyleneimine of example 8 for the cosmetic treatment of hair by producing activated hair by non-reducing activation of hair.

In view of the above reasons, 103 rejection is deemed proper.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JYOTHSNA A. VENKAT whose telephone number is 571-272-0607. The examiner can normally be reached on Monday-Friday, 10:30-7:30:1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MICHAEL WOODWARD can be reached on 571-272-8373. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1619

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JYOTHSNA A VENKAT /  
Primary Examiner, Art Unit 1619